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CAREER INCENTIVE BILL

Statement of Rear Admiral B. W. Hogan, Surgeon General, U. S. Navy,
on H. R. 8500, February 16, 1956

"Mr. Chairman and Members of the Committee, I appreciate deeply the opportunity to appear again before your committee and to testify as to the need for enactment of H. R. 8500.

It is no understatement to say that the continued loss of career naval medical and dental officers is the most serious problem I have had to cope with as the Surgeon General of the Navy.

This loss has been staggering!

In the last two fiscal years (54 - 55) the Regular Navy Medical Corps has lost through resignation almost 300 medical officers. In addition, some '0 were lost through death or retirement. Similarly, during this period ere were 90 resignations of dental officers.

To replace these losses we received only 55 new dental and only 39 new regular medical officers—all but one of whom went immediately into residency training, (the quid pro quo for their part of the bargain). Of the 55 dental officers, 15 were attracted by dental intern training.

The continuing loss of our trained career doctors is reflected in all phases of our function.

It is becoming more difficult to maintain acceptable standards of medical care in our hospitals, aboard ship, with the Marine Units—in fact, in all of our medical activities.

Our contribution to the safety program necessary for nuclear propulsion is in danger of being curtailed and our participation in fleet readiness has had to be reduced to absolutely bare essentials.

In the fields of radioactive isotopes and in preventive medicine—where formerly the military doctor pioneered—we are not even able to supply enough doctors for our teaching staffs.

The one basic reason for this unprecedented resignation rate is inadequate pay for doctors in military service compared with income levels they can command in civilian practice. It explains, in part as well, the extreme unpopularity of doctors' draft legislation. Incomes for doctors, even in Civil Service or in the Veterans Administration are far more attractive than what the military service can offer.

As Surgeon General of the Navy, it is my responsibility to the Secretary of the Navy and to the Chief of Naval Operations within the Department of Defense, and of all of us to the Congress to insure a satisfactory level of medical care for Armed Forces personnel and to maintain adequate health standards in the many and far flung activities in which our people are involved. To discharge this responsibility it is imperative that we maintain a hard core

of career doctors specially trained in the arts and science of military medicine to support our Marines in the field, our fleets on or under the seas and our planes in the air as well as in clinical, industrial and research fields.

I would be remiss in my duties if I did not sound the warning that we are in grave danger of losing all semblance of a career corps under the present low pay scales.

It is my opinion that the time for action is now. If the income for doctors in uniform is not substantially increased we will not be able to compete successfully with the attractions offered in private practice and the other government medical services. Military medicine, as such, will be a thing of the past and the military services will suffer accordingly.

Again my sincere thanks to you, Mr. Chairman, and your Committee, for the understanding and sympathetic consideration you are giving to the solution of this important problem."

STATEMENT OF THE AMERICAN MEDICAL ASSOCIATION

Re: H. R. 8500, 84th Congress
Medical and Dental Officer Career Incentives Bill

Before Subcommittee No. 2
House Armed Services Committee

By Harold C. Lueth, M. D.
February 16, 1956

Mr. Chairman and Members of the Committee:

I am Dr. Harold C. Lueth of Evanston, Illinois, where I am engaged in the private practice of medicine. As a member of the Council on National Defense of the American Medical Association, I appreciate the opportunity of appearing before your Committee today to discuss H. R. 8500.

It is our understanding that the purpose of this legislation is to promote the procurement programs of the military medical services by increasing the attractiveness of a military career. As Dr. Hamilton has said, the American Medical Association supports this bill as a step in the right direction. We do not believe, however, that it goes far enough in removing the financial and professional handicaps under which the current procurement programs of the Armed Forces are operating.

While the proposed bill would authorize longevity pay credit for the four years a physician spends in medical school and for the additional year

of internship training, this would result in only a token increase in pay and rank. Similarly, while the bill authorizes the upgrading of medical officers now on active duty by giving constructive service credit for this same period, it would have slight immediate effect. The longevity pay increase ranges from \$31 to \$76 a month, depending upon rank and length of service. In most instances, the constructive service credit will not bring about a marked acceleration in promotion.

Our Armed Services have not been able to compete financially even with other Federal medical services. Minimum starting salaries for physicians under civil service regulations range from \$7500 to \$8000 annually, as compared to an approximate \$6000 annual pay and allowance for military medical officers with comparable training and experience. Moreover, the average pay of a specialist (a Board certified physician) in the Veterans Administration is over \$12,000 annually—an income which a military physician can hope to achieve only after twenty-five years of service and assuming that he attains the rank of colonel. Civilian salaried positions available to physicians are at least comparable to the Veterans Administration pay scale, and the income possibilities may be even higher for physicians engaged in the private practice of medicine. Obviously, it will require a larger incentive pay than provided in this bill to place the military services in a reasonable, competitive position in obtaining and retaining qualified physicians.

The American Medical Association has long been concerned with the physician loss rate of the military medical services. We feel that this is a trend which must be reversed for several reasons. There is no question that the efficiency of military medicine is impaired by the constant turnover of medical officers. Not only is much of the time of these transient officers spent in processing, orientation, travel and separation, but there is a loss of accumulated experience. It is obvious that this turnover of medical personnel is expensive. We are also of the opinion that a lack of stability in the Medical Corps detracts from the professional prestige of military medicine and tends to aggravate the loss rate. Finally, it is apparent to us that one of the most readily available solutions to the problem of the special draft of older physicians lies in the development of a realistic program for attracting and retaining an adequate number of well qualified physicians on active duty voluntarily.

We do not mean to imply that a financial inducement is the sole solution to this problem nor that other features of military service should be overlooked. Since 1952, the American Medical Association, through its Council on National Defense, has conducted a continuing survey of physicians being released from military service. This survey is primarily designed to obtain information on the utilization of physicians in military service and on medical staffing conditions in the Armed Forces.

The questionnaire used solicits comment as to the conditions under which physicians returning to civilian life would be willing to remain on

active duty. Based on replies from over 9400 individuals, approximately one-third would not have been interested in remaining on active duty under any conditions short of total war. Another one-third indicated that their decision to return to civilian life was predicated on miscellaneous reasons, which could not be met under any feasible procurement program. It is the remaining one-third which an effective career incentive program can reach. Interestingly enough, our survey generally substantiates the conclusions reached by the Grenfell Task Force of the Department of Defense in the fall of 1955.

Promotion to higher rank, increase in pay, further specialty training, an opportunity to practice their specialty, more stability in assignment and improved living conditions for their families are all items which this group of physicians indicated would have significantly influenced their decision.

I should like to take this opportunity to commend the Department of Defense for its recognition of existing conditions and for the action it has already taken and plans to take to bring about necessary administrative improvements.

The American Medical Association is independently attempting to make military medical careers more attractive by increasing the prestige of military medicine and promoting better professional understanding between the military physician and his civilian colleague.

I should like to give you a few examples of our efforts. The Army, Navy, and Air Force are represented in our House of Delegates by representatives appointed by the Surgeons General of the respective services. Our scientific exhibits emphasize the attractive scientific and research aspects and accomplishments of military medicine. The Journal of the American Medical Association and the other specialty journals published by the AMA regularly report military medical activities and the results of original research and clinical accomplishments by military physicians. Our Council on National Defense, concerned largely with military medicine, is one of the ten standing Committees of the Board of Trustees. It maintains close contact with the problems of military medicine. We have endeavored by several means to foster and promote closer professional association between military medical officers and the county and state medical societies.

The services and the medical profession can do much to solve the problem of the vanishing career medical officers. The largest single item in the solution, however, falls squarely with the responsibility of Congress. We have previously pointed out to this Committee the financial disadvantage of the medical officer as compared with a line officer of the same age.

We agree with the Department of Defense that one of the major causes of our present situation is the disparity between the incomes of military physicians and other physicians. The disparity between the financial position of the medical officer and the line officer is an important contributing factor. The fact that the 1955 Grenfell Task Force, headed by

line officers, recognized and reported this situation is a source of satisfaction to the medical profession.

H. R. 8500 would enact into law two of the three legislative recommendations of this Task Force. While we are not committed to support the suggested contract bonus which constituted the third element of the recommended legislative program, we urge this Committee to examine this proposal carefully. We believe that there may be alternative methods—perhaps a substantial increase in incentive pay after the initial period of service; a mechanism similar to the reenlistment bonus now authorized for enlisted men; or even a service bonus similar to the one which proved satisfactory in retaining qualified officers in the Air Corps Reserve during the 1920's and 1930's. We are not committed to any particular method, but we are certain that, in addition to steps already taken or planned, it is essential that an adequate financial inducement be provided to place the military medical services in a more favorable competitive position than that which they occupy at present.

Finally, on behalf of the American Medical Association, we pledge our continued efforts to cooperate with the Department of Defense in strengthening and promoting the prestige and effectiveness of the military medical services. Thank you, Mr. Chairman.

Dr. Hamilton and I will be glad to attempt to answer any questions.

* * * * *

Surgery for Coronary Artery Heart Disease

Effective treatment for the patient with coronary artery heart disease must achieve four cardinal aims: (1) prolong life, (2) reduce invalidism and disability, (3) maintain productivity and well-being, and (4) relieve pain and discomfort.

Obviously, the ultimate solution is that of prevention of the occlusive process in the coronary arteries by medical means. Until this can be achieved, the patient with coronary artery heart disease must be given the benefit of any procedure which safely and effectively accomplishes the four aims. Standard medical therapy, which always includes some degree of restricted activity, may achieve aim number 4 at the expense of 2 and 3, with only questionable influence on 1. So-called radical measures, such as thyroid ablation, by medical or surgical means, also may relieve pain and discomfort, but certainly at the expense of aims number 2 and 3, and probably of 1. Neurosurgical procedures for interruption of pain pathways frequently achieve aims number 4 and 3 for variable periods, but, unfortunately, do not influence 1 and 2. It can be demonstrated that operation is a practical method for achieving all four aims.

This report is based upon observations on more than 200 patients operated on for coronary artery heart disease with special reference to a series of 75 consecutive patients operated on since July 1952 at Mount Sinai Hospital, Cleveland. Of these 75, the first 13 had the Beck II procedure, the remainder the Beck I. The simplicity and lower operative mortality have made the latter the procedure of choice in view of the equivalent degree of benefit provided.

The one indication for operation is a positive diagnosis of coronary artery heart disease. Operation should not be considered a salvage procedure to be applied only when medical treatment has failed. Ideally, operation is performed before there is any significant muscle damage. Early provision of a collateral circulation could save patients who would die of their first "coronary attack."

Classification of patients with coronary artery heart disease is particularly difficult. Consideration must be given not only to the degree of myocardial damage, but also to the progression of the occlusive disease in the coronary arteries. In general, the following broad classification has been found useful:

Group I. Mild disease. Usually under 50 years of age. Mild to moderate angina of effort. May have old infarct with little or no angina. (Operative mortality less than 3%).

Group II. Moderately advanced disease. One or more myocardial infarcts. Moderate to severe angina. May have bouts of coronary failure. (Operative mortality less than 5%).

Group III. Salvage. Poor operative risk, not much benefit expected. Extensive muscle damage. Sudden recent progression of symptoms. Status anginosus. Specific contraindications. (Operative mortality approximately 12%).

Operation is specifically contraindicated if there is so much muscle destruction that congestive failure has occurred. The small amount of benefit that can be achieved does not justify the surgical risk.

Acute myocardial infarction, or even suspicion of impending infarction, absolutely precludes operation for a period of 4 to 6 months. In addition to the obvious dangers of operation during the acute stage, the delay permits natural development of collaterals. Operation is also particularly hazardous in patients with progressively severe anginal pain without demonstrable evidence of previous myocardial infarction. These patients are apt to develop areas of ischemia during or immediately after surgery. Presumably, because of complete lack of collaterals, these hearts are prone to "electrical instability" and sudden death. On the contrary, patients with extensive muscle destruction and some degree of cardiac enlargement have remarkably stable hearts and tolerate operation quite well. However, evidence of congestive failure usually means it is too late for much benefit.

The 75 patients operated in this series were classified as follows:
Group I - 5, Group II - 44, Group III - 26.

The age range was 28 to 72 years with an average of 48 years. In general, patients over 65 are poorer risks. Likewise, patients under the age of 40 usually have a particularly malignant form of coronary disease. In this series, 14 patients were under 40 years and 4 were over 60. Only 2 were females.

Generally, the diagnosis of coronary artery heart disease is established by the history. Electrocardiographic evidence of myocardial infarction merely confirms the diagnosis. Operation has been performed on a number of patients who had normal electrocardiograms, even after standard tolerance tests. At operation, myocardial scars are demonstrated frequently in patients with completely normal serial electrocardiograms.

All patients should be completely digitalized before surgery. This must be done even though there is no evidence of failure. Despite certain theoretical objections to the use of digitalis, in the author's experience, digitalis (1) decreases the irritability of the heart, particularly during epicardial abrasion; (2) decreases the incidence of the various supraventricular arrhythmias occurring during induction and maintenance of anesthesia; (3) appears to aid in maintaining normal stroke volume and heart rate during operation; and (4) definitely increases the ease of resuscitation of dogs (and, no doubt, human beings) following cardiac arrest. In the opinion of surgeon, anesthesiologist, and cardiologist, digitalized patients run a much smoother operative course than nondigitalized patients.

During the operation, the surgeon, anesthesiologist, and cardiologist observe close teamwork. Although the surgeon assumes the major responsibility, the cardiologist is in command. Continuous electrocardiographic observation (such as with the cardioscope) is essential. The operation is interrupted whenever necessary. The appearance of alarming electrocardiographic changes (markedly prolonged intraventricular conduction, evidence of extensive ischemia) may be sufficient to cause termination of the operation at any given stage.

Postoperatively, these patients do remarkably well. Except for the usual thoracotomy discomfort, convalescence is usually uneventful. The operation per se does not result in pericarditis pain. If pericardial effusion occurs, it drains into the left pleural cavity. However, only rarely is it necessary to perform a thoracentesis. On no occasion has pericardial tamponade occurred.

The Beck operation for coronary artery heart disease is a safe and effective method for providing a more adequate distribution of available coronary arterial blood supply to the heart. In preventing unequal oxygenation of contiguous areas of the myocardium, electrical stability of the heart is maintained.

Of the last 56 patients operated on, 3 died in the immediate postoperative period, giving an over-all operative mortality of 5.4%. A lower mortality rate probably cannot be achieved, in view of the spontaneous mortality in

such patients with severe coronary artery heart disease. In a series of 44 consecutive patients with a long-term follow up of 10 months to 3 years, only 3 have died; 38 (86.5%) have little or no pain, and 37 (84%) are working either full time or more than before operation.

In view of the proved effectiveness of the Beck operation for coronary artery heart disease, the demonstration of a very low operative mortality (5.4%) removes the operation from the category of salvage procedures and justifies its early application to a majority of patients with the disease. (Brofman, B. L., The Clinical Aspects of Surgery for Coronary Artery Heart Disease: Medical Annals, District of Columbia, XXV: 1-6, January 1956)

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Recurrence of Carcinoma at Anastomotic Site

Recurrence of carcinoma of the colon at the site of anastomosis is encountered with sufficient frequency that further studies of this problem seem indicated. Cole found a 16% incidence of local recurrence, two-thirds of which occurred at the line of anastomosis following resection of the colon and proximal rectum. Goligher and associates also noted the high incidence of recurrence at the suture line in similar cases. The present study was undertaken to analyze the experience at The New York Hospital and to determine the significant factors in recurrences encountered in this institution.

One hundred and forty patients were subjected to primary resection of the colon with intent of cure. The majority of these operations were performed by members of the resident staff. As far as could be determined, the anastomosis, which was performed in association with each resection, was an aseptic type which involved interrupted silk sutures placed through the seromuscular layers of the bowel over intestinal clamps.

Recurrence of carcinoma at the anastomosis occurred in 21 (15%) of the 140 patients. It was found that only 2 of these recurrences occurred proximal to the splenic flexure. In 5 of the 21, an additional resection of the colon was performed for the recurrent carcinoma. One patient, who had a recurrence after resection of a carcinoma of the splenic flexure, has survived 7 years since the second operation without evidence of carcinoma. One patient with carcinoma of the descending colon had two secondary resections of the colon because recurrences developed. Each recurrence was detected 3 years subsequent to the previous operation. One year after the third resection, exploratory laparotomy was performed and liver metastases were found without evidence of local recurrence in the colon. The remaining three patients died of extension of carcinoma within 3 years of the second operation.

Cole has postulated that the implantation of exfoliated tumor cells upon the suture line at time of operation is responsible for recurrence. Goligher

and associates have presented data that support this view. One of the most striking features in the present analysis of recurrences at the site of anastomosis is the marked difference in incidence between the mid- and right portions of the colon and the left portion. There were only two anastomotic recurrences in the 49 resections proximal to the splenic flexure, a recurrence rate of 4.1%. In the 91 resections for carcinomata originating in the splenic flexure, descending colon, and sigmoid colon, 19 recurrences were observed—an incidence of 20.9%. The operative technique in this series did not vary greatly. Manipulation of the tumor was certainly involved in both areas. If exfoliation of tumor cells is the predominant feature, then one might not expect such a great difference in the incidence of recurrence between the two portions of the colon. Because the lumen of the colon is relatively empty at the time of operation, there would appear to be a comparable opportunity for intraluminal dissemination of exfoliated cells, if this was a major factor.

Methods for preventing recurrence of carcinoma at the anastomotic site warrant further study. Cole has suggested occlusive ligatures about the wall of the colon both proximal and distal to the tumor and transection beyond the ligatures. Goligher and associates have recommended irrigation of the distal segment followed by excision of the exposed cuff of bowel. Baker has undertaken intraluminal inspection of the remaining portion of the colon by means of a proctoscope or sigmoidoscope at the time of resection. It would appear that there is merit in these suggestions and that all should be investigated. It is important to consider each factor contributing to local recurrence when a resection is performed for carcinoma of the colon. In extending the limits of resection of the bowel in the treatment of carcinoma of the left side of the colon, proximal extension of the line of resection has generally received emphasis. It seems equally important to extend the distal line of transection as far as possible. This site should be selected early in the operative procedure. The proximal clamp across the bowel should be applied first. In resections of the left colon, it may be advisable to attempt to place the anastomosis within reach of the sigmoidoscope. Further, the information available seems to lend indirect support to the concept of left hemicolectomy for carcinomata arising in the left portion of the colon. Future analyses will be required to see if the extension of the limits of resection for carcinoma of this portion will result in a diminished incidence of local recurrence.

Whether the advantages of irrigation of the distal segment, as suggested by Goligher, has sufficient merit to outweigh the possibility of contamination of the wound and peritoneal cavity, remains to be determined. The specimen obtained should be inspected by the pathologist or surgeon to determine that the margin is adequate and to determine if papillomata are present. Certainly, the remainder of the bowel should be carefully searched for satellite papillomata or other neoplasms. The follow-up period should include

repeated investigations for evidence of papillomata and for the development of new neoplasms. When a recurrent carcinoma is suspected at the site of anastomosis, prompt intervention should be undertaken. Although the prognosis is poor when recurrence is detected, resection may result in prolonged survival in some instances, and should be attempted. (Beal, J. M., Cornell, G. N., A Study of the Problem of Recurrence of Carcinoma at the Anastomotic Site Following Resection of the Colon for Carcinoma: Ann. Surg., 143: 1-6, January 1956)

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A Study of Retinoblastoma

Eyes from 176 cases of retinoblastoma, submitted to the eye pathology laboratory of the Massachusetts Eye and Ear Infirmary, served as a basis for this statistical study.

In accordance with the decision of the Committee of the American Ophthalmological Society to Investigate and Revise the Classification of Certain Retinal Conditions, the term retinoblastoma has been applied to all tumors of this type. In this series, the tumors have been placed in one of two groups, those with few or no rosettes (complete, incomplete, or pseudo-) and those with many rosettes (complete, incomplete, or pseudo-). This grouping of the tumors was applied to those specimens received by the laboratory before and after 1930. For the period 1898 to 1929, there were available for complete examination 76 specimens. Twenty-eight of these showed many, and forty-eight showed no rosettes, or few, in most sections. For the period 1930 to 1951, complete examination was possible of 101 specimens.. Of these, 55 showed many and 46 none or only a few rosettes. Thus, 83 specimens showed many rosettes and 94 showed few or none. In cases with bilateral involvement, 4 had many rosettes bilaterally, 5 had none or few bilaterally. Four had many rosettes in one eye and few or none in the other.

The degree of optic -nerve involvement was broken down into two groups: with extension of the tumor beyond the lamina cribrosa or to the lamina.

Of these eyes, with involvement of the optic nerve to the lamina cribrosa or beyond, 31 had tumors with many rosettes and 38 had tumors with few or none.

Tumor was present within the choroid of 61 eyes (34.5%). Eighteen of these eyes had tumors with many rosettes and 43 with few or none. In 19 eyes (10.7%) extrascleral extension was present. Three of these had tumors with many rosettes and 16 had few or none.

Among those cases with many rosettes, 33% had symptoms longer than 3 months before treatment, and 15.5% longer than 6 months. Among those with few or no rosettes, 62% had symptoms longer than 3 months and 44% longer than 6 months before initial treatment.

History was obtainable for 28 cases with tumor within the choroid. Nineteen (68%) had symptoms longer than 3 months before treatment, and 13 (47%) longer than 6 months.

The followed-up series contained 40 cases of tumors with many rosettes and 33 with few or none. One fatality and two survivors had bilateral disease with many rosettes in one eye and few or none in the other. Three (7.5%) of those having tumors with many rosettes, and 14 (42.4%) of those having few or none, have died of the disease. Of those who died of tumor, 7 had malignant cells in the cut end of the optic nerve, 5 had extrascleral extension, and 3 had massive involvement of the choroid. It is assumed that massive choroidal involvement is an explanation of fatality. From the fatality group, 13 of the 18 showed some choroidal involvement, while among the survivors, only 11 of the 62 showed this involvement. Three tumor fatalities offered no adequate explanation of the cause of death from examination of the specimens because of poor preservation. The example of "possible" tumor death probably had extrascleral extension, but this specimen was poorly preserved. Three fatalities are known to have had generalized metastases.

The mean delay in treatment in this series was 4.9 months. When the series is broken down into those cases occurring before 1930 and since, it is apparent that in later years treatment has been earlier. Before 1930, 49%, and since that date only 17%, had symptoms longer than 6 months when first treated. In the adequately followed group, 15% of the survivors and 44% of the fatalities had symptoms longer than 6 months before treatment was begun. Considering this difference between survivors and fatalities and also the greater percentage of 3-year (and hence probably permanent) cures since 1930 than before, prompt treatment of the disease, when it is discovered, would seem to play a significant role in the chances of effecting a cure in any given case. This is also reflected in the degree of choroidal involvement because 47% of those with choroidal involvement had symptoms longer than 6 months before treatment was instituted. The number of cases with extrascleral extension, for which histories were obtainable, is small and no definite trend is shown. Prompter treatment since 1930 is indicated by the decrease in involvement of the optic nerve by tumor beyond the lamina cribrosa, 41% before 1930, and 21% since that date. Reese reports a similar decrease in recent years.

Examination of these specimens for the purposes of classification of the tumors revealed that there is no clear cut dividing line between the two groups, with and without rosettes. Even the tumors containing the fewest rosettes were likely to present some true rosettes in certain sections, while those with many usually had free areas. Accordingly, it is the belief of the authors that the use of a single name to describe all tumors of this general type is justifiable, and that variations in the histologic picture are consistent with variations in the degree of differentiation of the same tumor. No effort has been made to determine the origin of the growth.

Certain data suggest that the longer the tumors are present before treatment, the more undifferentiated they become. It may be reasoned that the very few rosettes seen in tumors with fatal outcome is the consequence of longer existence of the growths before enucleation, rather than that the lethal outcome stems from primary undifferentiation. (Herm, R. J., Heath, P., A Study of Retinoblastoma: Am. J. Ophth., 41: 22-29, January 1956)

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The Use of Dionosil in Bronchography

The search for ideal agents to be used in contrast roentgenography is a continuous one, and in no field is their need more keenly felt than in bronchography. For that procedure, it is highly desirable that the following objectives be met:

1. The degree of irritation produced by the medium should be of sufficiently low degree that bronchography may be performed with a minimum of effort and with the least possible post-bronchographic complications.
2. The contrast agent should so outline the bronchial tree and provide such roentgenographic contrast that maximum diagnostic utility is attained.
3. While the foregoing criteria are probably most important, it is also desirable that the contrast medium be removed or absorbed so that later roentgen diagnostic study of the chest may be of maximum benefit.

In the authors' experience, these criteria have been fulfilled best by N propyl 3:5-di-iodo-4 pyridone-N-acetate (propyliodone), manufactured under the trade name of Dionosil. The present article reports results obtained with this contrast medium in 74 bronchographic examinations in 68 patients.

Both aqueous and oily Dionosil proved to be far less irritating than aqueous Diodone (Xumbradil). The authors found that Dionosil allows an unhurried performance of a more satisfactory examination, being comparable in this respect to Lipiodol and Iodochlorol.

In all of the patients, contrast filling of the bronchial tree was adequate, as demonstrated in the 3 views described. In 3 instances, diagnostic bronchograms were not obtained because of technical difficulties, but subsequent attempts in these same patients were successful.

The tendency to outline the bronchi, with production of a double contrast effect, was noted in many bronchograms. Occasionally, a small amount of contrast material entered the alveoli, but not to the degree observed following the use of Lipiodol and Iodochlorol.

Chest roentgenograms were obtained 24, 48, and 72 hours following bronchography in order to estimate the degree of clearance of opaque shadows from pulmonary structures. In patients in whom this was not possible,

a roentgenogram was obtained at the earliest possible date. The authors were unable to obtain a follow-up roentgenogram in 7 cases. From a composite study of the remaining examinations, it was estimated that over 75% of the contrast material had disappeared from the pulmonary fields within 24 hours. In 48 hours, over 90% had disappeared, and in 72 hours, usually only a trace or none at all could be seen.

Diagnostic bronchograms were obtained with both the oily and aqueous suspensions of Dionosil. The oily suspension is, perhaps, less irritating, but also shows a slightly greater tendency to enter the alveoli, which may be responsible for the slightly slower clearance observed on postbronchographic roentgenograms. Norris and Stauffer found that the oily medium may require one or two days longer for complete clearance.

Few complications, following the use of either aqueous or oily suspensions of Dionosil, were observed. A slight cough was noted in about 10% of the patients. In this respect, the oily medium seems slightly less irritating than the aqueous preparation. A temperature elevation, confined to the day following bronchoscopy and usually not exceeding 100° F., occurred in 8 patients. This pyrexial reaction subsided spontaneously without specific medication. In 3 patients, slight headache, sore throat, and shortness of breath developed, subsiding the following day. Whether these were due to the procedure as a whole or to the contrast medium is not clear. Two patients had clinical signs of pneumonia following bronchography, but in only one was there roentgen evidence of the disease.

Many advantages and no disadvantages are noted when Dionosil is compared with the iodized oils and Xumbradil Viscous B for bronchography. (Nice, Jr., C. M., Azad, M., The Use of Dionosil in Bronchography: Radiology, 66: 1-7, January 1956)

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High Intensity Noise

A report states that in high intensity noise and particularly as it appears on the flight deck of the carrier, a situation that is new in man's experience is present. The noise levels are higher than any in which man has previously lived and carried out military operations. It is not known exactly what exists except that it is known that a stress is present—something that is making it more and more difficult for men to carry out their military duties. One very obvious difficulty is interference with communications. The whole operation of the ship is involved in the difficulty of communication by mouth and by ear. Then, above that, there is the question of what is happening to the men in the really intense noise field, down close by the jets.

The jets have really made this problem and the afterburner on the jets makes it still worse. Surveys have shown so far that this noise is

affecting the hearing of the men who are regularly and repeatedly exposed to it. A significantly greater percentage of hearing losses in the high frequencies among the men on the flight deck have been found. This seemed to be related to the particular position or particular job they were doing and to the noise sources.

Fortunately, there is something that can be done about the loss of hearing. The hearing loss begins at high frequencies and, therefore, does not cause trouble in hearing speech until it is pretty well advanced, so that a warning signal is present. High-tone hearing losses are now being produced, but with ear protectors, something can be done about them. This is a matter of getting ear protection on the man. With present noise levels, this will check the loss of hearing now going on. While ear protectors are not yet perfect, they are, nevertheless, adequate if the necessary compromises, in regard to acceptability and to the operational problems of getting the ear protection on and keeping it there, are successfully worked out. Hearing can be protected by the regular use of presently available ear protectors.

However, there is still the possibility that other things besides effects on hearing are taking place in the way of cumulative buildup of stresses of one sort or another that cannot be identified at the present time. The physical stress and strain of the buffeting is very considerable. Also, there is the continuing trend toward increase in power of aircraft. It is known that the trend is continuing toward greater power in the power plant; that means more energy which in turn means more energy inevitably lost as noise and a tougher situation for the man. If the noise can be reduced at the source, that is wonderful; work is going on trying to do that by improvements in the design of the engines and exhaust. At most, it will buy a certain amount of time, but will not change the nature of the ultimate problem. The recommendations that came out of the Benox evaluation included starting to find out what is going on. Are there cumulative effects? Does the stress cause chronic fatigue or possible cumulative injury to the nervous system or to the sense organs? Are there "non-auditory" effects, perhaps in the nervous system, the lungs, the digestive system?

This kind of noise is in just one place—the immediate vicinity of the exhaust engines of modern jet engines. That means, practically, that the flight-line maintenance man and the carrier deck crews are the main groups exposed. Also, the situation is not reproduced under laboratory conditions.

Preparations are being made to carry out a joint project between the Central Institute for the Deaf and the School of Aviation Medicine at Pensacola. The project involves building a mobile laboratory that can go aboard a carrier and study the problem where it exists. There are three or four phases of this project. One is to get better measurements of the noise with which to relate any biological effects that are picked up. The second is to measure the effects on hearing and relate the hearing losses to the noise. The third is to study the effectiveness of protective measures. Ear protectors

will be used; they are still being improved and this study will afford an opportunity to evaluate them in the field. The fourth is to watch for non-auditory effects. The fifth is to observe by neuro-psychiatric techniques, and to carry out certain routine medical observations.

The laboratory in question, the mobile laboratory, is a trailer, 40 feet long, 8 feet wide, 11-1/2 feet high, and weighing some 10 tons. It has a double shell construction for sound treatment and constitutes a really useful laboratory space. It will have one room large enough to hold ten subjects simultaneously for sound treatment and another room where the physiological and psychological tests and examinations can be carried out; also a control room for laboratory apparatus and air conditioning.

Another part of the project is to develop a "fixed" laboratory at the School of Aviation Medicine where the corresponding equipment will be set up and corresponding studies carried out. The purpose of the fixed installation is two-fold; to get controlled observations (a base-line from which to take off); and to try new tests, to develop techniques, and get them in good working order before they go to sea. A continued rotation of tests must be developed or selected from the tests already developed. Actually, this has been going on; the fixed laboratory has been in operation on a temporary basis. Of the original ten tests selected, five have been eliminated, either as being impractical for some reason or because they duplicated one another too much. The second trial on another group of tests is about to begin and will be continued.

For measuring hearing, a group audiometer with several novel features to fit particular needs has been developed. There is no one group audiometer that is best for all situations. Here, there is need to study things quickly—immediately after the men come down from the flight deck. Also, a wide range must be covered from normal to complete loss of hearing because some of the men have total loss at high frequencies.

On the noise measurement front, it is encouraging that microphones have been improved so that confidence in the accuracy of the microphones, to be used in these high intensity noise fields, exists. A telemetering device, a microphone, and a short wave broadcast unit about the size of a two-pack hearing aid of the old style, which can be put on individual men without encumbering them seriously, is being developed. The continuous story of what the noise is at the microphone can then be obtained, and just what this particular man undergoes as he carries out his particular duties around the planes can also be obtained. This will be an important advance because the problem here is really oriented to the man; it is the story of the man's exposure to the noise.

An instrument for measuring noise exposure, called the "noise cumulator," is being developed. This instrument will tell how much of the time the noise has been at the level of 125 db. or more, how much of the time at 130 db. or more, how much at 140 db. or more, at 145 db. et cetera. Six

or seven particular levels can be selected and a direct reading of how much time at an individual level can be gotten. It is not only a matter of intensity and frequency, but of how much time the man is subject to this stress.

The idea is, in summary, to test the men before, to test them during, and to test some again at the end of a tour of duty with the noise, and then to see what has been obtained. (Davis, H., High Intensity Noise: Annual Research Conference, Bureau of Medicine and Surgery, Report, pp., 103-106, May - June 1955)

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Malaria - A Challenge to Mankind

Three hundred million cases and three million deaths was the yearly toll which malaria was estimated to take in the world before present control methods were used. Most people now know that malaria is an infection transmitted by certain species of mosquito known as anopheles.

Nowadays, anyone living for some time in a territory where there is a risk of contracting malaria can probably escape it by taking an adequate weekly dose of one of the antimalarial drugs which have been in use since the last war (amodiaquine, chloroquine, proguanil, pyrimethamine). If living quarters are screened, so much the better; if not, it will be necessary to sleep under a mosquito net and to limit exposure to the bite of the insect as far as possible when outside the mosquito net. It would be unwise, for instance, to spend a considerable part of the night at the bridge table in a house where mosquitoes have free entry.

Action of this kind to protect against malaria is like boiling or filtering a personal water supply to make it safe. But, even so, this does not relieve the public authorities of their responsibility for protecting water supplies. In a similar way, governments today are undertaking the control of malaria over vast regions—a project unheard of a dozen or so years ago.

The ancient Romans realized that there was some connection between marshes, mosquitoes, and fevers. They made what might, perhaps, be called the first attempts at preventive medicine by introducing mosquito nets and drainage.

The mosquito net, already in use in ancient Egypt, was very likely invented less as a protection against fevers than against the troublesome insects which spoiled the beauty of women's faces. If, as Horace tells, Cleopatra on her journeys with Antony slept under a mosquito net, there is reason to believe that it was not just to protect herself against malaria. The draining of marshes, however, may have been intended to serve sanitary and agricultural purposes.

The engineer Vitruvius, contemporary of Augustus, who may be considered a forerunner of the modern sanitary engineer, maintained that

"heavy and substantial vapors" rise from undrained marshes. Although he built canals for the drainage of swamps (and reduced the number of mosquitoes) he did not solve the problem of malaria, for the anopheles of the Roman campagna lay their eggs not only in stagnant water, but also in the slowly moving water of canals and ditches.

Vitruvius should have been born in the United States of America some centuries later, for the principal anopheles of the country, Anopheles quadrimaculatus, does breed only in stagnant water. If, on the other hand, Vitruvius had been born in Manila, he would never have thought that drainage could protect against fever, for in the Philippines, the vector lays its eggs in running water.

At the end of the last century, quinine began to be produced on a large scale and great hopes were raised by this drug, because it was known that a daily dose protected against fevers, even if it did not prevent infection. Today, much more effective drugs than quinine, like those mentioned earlier, are obtainable. By using these, malaria can undoubtedly be wiped out among small groups. But how could these products be administered weekly, or even once a fortnight, to millions and millions of people? It would be a task beyond the powers of any health administration to enforce such a discipline.

When, in 1898, it was proved that malaria is only transmitted by anopheles, it seemed that a way had been found to control the disease. Even if it were not possible to suppress the anopheline breeding-places by drainage and filling (both very expensive measures) it should be feasible to spread larvicidal substances on their surfaces. This was done between the two world wars—the period of oiling or using "Paris green." Crude oil was poured on breeding places every 10 to 15 days; or they were treated with a mixture of road dust and 1% "Paris green." In this way, all anopheles larvae were killed, and, provided that the operation was efficiently carried out, malaria could be overcome.

Unfortunately, however, malaria is preeminently a rural disease; it is a disease of villages and hamlets. It is for this reason that malaria is important to all—even to countries where it does not exist—because it prevents the cultivation of fertile land and, thus, reduces the production of food supplies in a world which is short of them.

Recently, the myxomatosis virus appeared in France (and elsewhere) and spread so quickly that almost all rabbits were destroyed. Although this was not done by human agency, it is an example of a biological method of controlling a species. Similar methods have been employed by man in the campaigns against anopheles, by distributing large numbers of a small fish of American origin (Gambusia), which is a voracious eater of mosquito larvae, to the breeding places of mosquitoes in Europe, Africa, Asia, and the Philippines. Although these fish multiply rapidly, the result hoped for was not achieved except in the Istrian peninsula where anopheles were able to breed only in a few ponds of a special kind (lokvas) where gambusiae could

feed on them freely. Such favorable circumstances were not often found elsewhere.

Larvicides and gambusia were intended to destroy the vector in the larval stage in water. As early as 1927, however, the League of Nations Malaria Commission emphasized the importance of destroying adult mosquitoes in houses, where they are directly responsible for spreading malaria, because man is usually bitten during the night by anopheles.

The spraying of pyrethrum, or "flitting," as it was sometimes called, then began and gave very good results in South Africa (1931), in India, and in the Netherlands. This spraying, however, needs to be repeated at least once a week and is, therefore, not practical as a large-scale public health measure.

During the last war, the Swiss scientist and Nobel prize winner, Paul Muller, discovered that dichloro-diphenyl-trichloroethane (DDT) was a very effective insecticide which killed insects by simple contact. Moreover—and this is a great advantage—when it is sprayed on walls, it remains deadly for weeks and months to insects which come into contact with it for only a few moments. Therefore, by spraying the inside walls of houses with one of the residual insecticides (not only DDT, but benzene hexachloride (BHC), chlordane or dieldrin) a country can be protected at a uniform per capita cost, whether the inhabitants are many or few or whether they live in towns or in very small communities. This cost is rather low. In South East Asia, it is about 11 U.S. cents per person per year; in the Western Pacific, 17 cents; and in the Americas, about 45 cents.

In this way, a method of preventing rural malaria was at last found. Since these insecticides were discovered, the governments of countries where malaria is rife, as well as interested international organizations, have devoted considerable effort to large-scale antimalaria campaigns designed to control the disease throughout the affected areas. In many countries, where the disease had previously gone unchecked, it was found that malaria control was economically feasible and infinitely worthwhile; in others, such as Italy, where until recently methods like drainage, larval control, distribution of quinine, screening of houses and land reclamation were used, this one single method was substituted and found to be more economical and effective than all the others put together.

However, a new problem has arisen involving a new threat: some of the malaria-carrying anopheles are developing resistance to the new insecticides. It would seem that such resistance takes some years to develop, but it also seems that, once it is established to any one of the four chemicals mentioned above, resistance to the others may develop within a few months. This has already happened in Greece. Fortunately, most people suffering from malaria get rid of their infection, even without treatment, in a period of one to three years unless the attack is fatal or they become reinfected. Therefore, as effective insecticide campaigns can prevent the occurrence

of new cases, and provided the treated zones are large enough to obviate the importation of infection from outside, a few years of spraying should be enough to secure the total eradication of malaria. This has already been achieved in several regions and the principal aim now is also to attain this goal elsewhere before resistance to insecticides can develop. When this objective is reached, insecticide campaigns can be discontinued and the cost of malaria control will cease to be a burden on national health budgets. This is the strategy recommended by the World Health Organization, and it has already been adopted by many countries all over the world. (Dr. E.J. Pampana, World Health Organization)

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A Letter from CNO

The following paragraph is quoted from a letter written by the Chief of Naval Operations.

"Thank you for your fine letter. The hospital overhaul does not seem to affect your high spirits, and your praise of the doctors and nurses is very much appreciated. The Navy has the finest Medical Corps in the world, and we may all be proud of the great work they are doing."

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BuMed Circular Letters

Requests are still being received for copies of individual BuMed circular letters and for the Bulletin of Bureau of Medicine and Surgery Circular Letters. This material is no longer current as all of the circular letters have been canceled by (1) superseding Instructions, (2) individual cancellation Notices, (3) SecNav Notice 5215 of 11 July 1955; Subj: Cancellation of certain directive-type SecNav letters, general messages, and Navy Department Bulletin items, or (4) the SecNav consolidated cancellation Notices. (AdmDiv, BuMed)

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Postgraduate Short Courses for Medical Officers

1. The following postgraduate short courses will be given as indicated. Eligible officers are those who meet the criteria prescribed by BuMed Instruction 1520.8 of 6 February 1956.

2. Eligible and interested officers should forward requests via official channels, addressed to the Chief of the Bureau of Medicine and Surgery. Requests for attendance must be received in BuMed at least 30 days prior to commencement of the course requested. Travel and per diem orders chargeable against Bureau funds will be authorized those approved for attendance.

<u>Course</u>	<u>Location</u>	<u>Dates</u>
<u>Surgery in Acute Trauma</u>	Walter Reed Army Medical Center	2-6 April 1956
	Brooke Army Medical Center	" "
	Fitzsimons Army Hospital	" "
	Letterman Army Hospital	" "
	William Beaumont Army Hospital	" "
	Madigan Army Hospital	" "
 * <u>Management of Mass Casualties</u>	Brooke Army Medical Center	16-20 Apr. 1956
 * <u>Medical Care of Atomic Casualties</u>	Walter Reed Army Medical Center	4-9 June 1956
 <u>Application of Histochemistry to Pathology</u>	Armed Forces Institute of Pathology	7-9 May 1956
 <u>Obstetrics and Gynecology Seminar</u>	Walter Reed Army Medical Center	9-13 April 1956
 <u>Radiobiology</u>	Walter Reed Army Medical Center	9-11 April 1956
 <u>Symposium on Cardiovascular Diseases</u>	Armed Forces Institute of Pathology	14-17 May 1956

* These two courses are identical in course content. (ProfDiv, BuMed)

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Correction

Reference to footnote, page 3, Medical News Letter, Index, Volume 26: "Number 1" should read "Number 4."

Radiobiology Course

Announcement has been made by the Armed Forces Special Weapons Project of a course for Medical and Medical Service Corps officers in Radiobiology to be given at Reed College, Portland, Ore. The course will convene in July 1956 and end about 3 May 1957. The tentative schedule for the class is as follows:

<u>Part I</u>	<u>Academic Training</u>	Reed College, Portland, Ore. 9 July - 21 December 1956
<u>Part II</u>	<u>Industrial Health Physics</u>	Hanford Works, Hanford, Wash. 7 January - 15 February 1957
<u>Part III</u>	<u>Special Medical Orientation</u>	a. Nevada Test Site, Nev. 25 February - 28 February '57 b. Sandia Base, N.M. 4 March - 15 March 1957
<u>Part IV</u>	<u>Mass Casualty Course</u>	Walter Reed Army Institute of Research, Washington, D.C. 25 March - 3 May 1957

The objectives of this training are to provide Medical and Medical Service Corps officers with sufficient technical background to serve as Staff Advisors in all phases of the medical aspects of atomic defense; as advisors in the medical problems associated with the use of atomic reactors for power purposes; and as instructors in the various Service training centers in this specialty.

Continuing progress in the field of nuclear energy and atomic research means an increasing need for Medical officers and Medical Service Corps officers trained in radiobiology. Nuclear powered submarines have been launched and more will be launched within the next few years. Nuclear powered surface ships are planned. There are land based prototypes of the ship reactors at several sites at present, and more of these may come into operation within the next few years. The Naval Reactor Program needs trained Medical and Medical Service Corps officers to fill new billets as they develop.

The Navy Medical Department also has six clinical radioisotope laboratories and is conducting studies in the field of radiobiology at several research laboratories.

The course sponsored by the Armed Forces Special Weapons Project in Radiobiology will provide training needed for the types of billets described.

Requests are desired immediately from Medical and Medical Service Corps officers of the regular Navy and the Naval Reserve in the ranks of Commander and below who are interested in this field of study. In accordance with BuMed Instruction 1520.7 of 4 August 1954, each request for this course must contain the applicant's agreement to serve for a period of two (2) years after completion of the course, or for two (2) years following completion of any obligated service whichever is longer. Requests must reach BuMed prior to 1 May 1956, and may be made by dispatch if the time element involved requires such action. Dispatch requests must be confirmed by a following letter. (Special Weapons Defense Division, BuMed)

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Symposium on Acute Trauma

The Commanding General, Tripler Army Hospital, has named April 2 - 6 inclusive as dates for the Hospital's symposium on acute trauma. The discussion will deal primarily with noncombat type trauma such as training injuries, traffic accidents, and household mishaps.

An attendance of 200 Island doctors, civilian and military, is expected for the 5-day conference.

Subject matter will emphasize case histories, supplemented by slides, graphs, and tabular data. The program schedule follows:

April 2, a.m.	The Body Reaction to Injury
April 2, p.m.	The Body Reaction to Injury (continued)
April 3, a.m.	Injuries of the Head - Central Nervous System
April 3, p.m.	Thoracic Injuries
April 4, a.m.	Abdominal Injuries
April 4, p.m.	Skeletal, Trunk, Urinary Tract Injuries
April 5, a.m.	Thermal, Traumatic Soft Tissue Injuries
April 5, p.m.	Soft Tissue Injuries (continued)
April 6, a.m.	Skeletal Injuries - Upper Extremity
April, 6, p.m.	Skeletal Injuries - Lower Extremity

(TIO, Tripler Army Hospital)

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From the Note Book

1. The purpose of Navy Medical Department Training is: (1) to achieve and maintain professional standards of medical care comparable to that encountered in superior medical facilities in civilian life; (2) for the

- continuous advancement of naval medicine; (3) to attract and retain young physicians in naval medicine; and (4) to insure that the talents of able physicians have full opportunity for growth and utilization in their field of special interest and training. (Fiscal Program, BuMed)
2. Captain D. W. Miller, MC USN, will represent the Bureau of Medicine and Surgery, and present a paper titled, "Treatment of Burns," at the Sixth Middle East Medical Assembly, Beirut, Lebanon, April 6-8, 1956. (TIO, BuMed)
 3. LTCDR P. D. Doolan, MC USN, has been commended by the Surgeon General for his work as Chief of the Research Division and Metabolic Research Facility, USNH, Oakland, where he has been on duty since February 1953. Admiral Hogan's letter stated that the accomplishments of the Metabolic Research Facility under Dr. Doolan's direction have been a source of pride to the entire Navy Medical Department and that Dr. Doolan has established an outstanding reputation in the Service and among civilian members of the medical profession. (TIO, BuMed)
 4. The procurement program for the Supply and Administration Section of the Medical Service Corps, USNR, has been modified to include the commissioning of civilian hospital administrators. Applicants must hold a master's degree in hospital administration from one of the universities listed in Recruiting Service Instruction 351.4, and must be under 32 years of age at time of appointment. All appointments will be made in the grade of Ensign, MSC, USNR. (TIO, BuMed)
 5. An article entitled "Splenic-Gonadal Fusion," by W. G. J. Putschar, and W. C. Manion, appeared in the Jan-Feb 1956 issue of the American Journal of Pathology. Twenty-six cases of gonadal-splenic fusion (fusion of the ovary or the testis with the spleen) collected from the literature have been studied in conjunction with four new cases from the Armed Forces Institute of Pathology. (AFIP)
 6. Eighty-seven benign strictures of the bile ducts are considered. Patients were subjected to 125 reconstructive procedures. A definite percentage of strictures after cholecystectomy or choledochostomy are due to the patient's primary disease and not to operative trauma. (New England J. Med., 12 Jan., 1956; G. A. Donaldson, M. D., A. W. Allen, M. D., M. K. Artlett, M. D.)
 7. The direct instillation of nitrogen mustard into malignant effusions is as effective as radioactive colloidal gold in decreasing or eliminating fluid accumulation. Therapy with radioactive gold may be initiated later if nitrogen mustard does not produce the desired result. (Geriatrics, January 1956; A. S. Weisberger, M. D., F. J. Bonte, M. D., L. G. Suhrland, M. D.)

BUMED INSTRUCTION 1920

3 February 1956

From: Chief, Bureau of Medicine and Surgery
 To: COMs all NavTraCens; COs all NavHosps, CLUSA: COs all
 NacRecStas, CLUSA; CGs and COs, all MarCorps Activities,
 CLUSA
 Subj: Certificates relative to a full and fair hearing in the case of
 officer personnel recommended for discharge by reason of physical
 disability
 Ref: (a) Section 0901 (1955) Naval Supplement Manual for Courts-
 Martial
 (b) BuMedInst 1910.2A, Subj: Disposition of enlisted and inducted
 members by reason of physical disability or military unfitness;
 standards and procedures for

This instruction prescribes certain administrative procedures in connection
 with the discharge of officers by reason of physical disability.

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BUMED INSTRUCTION 6820.4C

10 February 1956

From: Chief, Bureau of Medicine and Surgery
 To: Ships and Stations Having Medical/Dental Personnel Regularly
 Assigned
 Subj: Medical and dental professional and technical books; procure-
 ment of
 Ref: (a) OpNavInst 7100.2 of 6 Jun 1951 (NOTAL), Subj: U.S. Naval
 Stations, financial responsibilities for
 (b) SecNavInst 7600.3 of 3 May 1955 (NOTAL), Subj: Financial
 responsibility for maintenance and operation of medical and
 dental facilities at activities operating under the Navy Indus-
 trial Fund and certain other industrial type activities.

This instruction informs addressess of the procedure to be followed in the
 procurement of professional and technical medical and dental books.

BuMed Instruction 6820.4B is canceled.

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DENTAL**SECTION**

Correspondence Course Guide for Dental Officers

This information is published in response to the many requests received from active and inactive dental officers for assistance in selecting naval correspondence courses which will help them prepare for the responsibility of higher grades. The courses listed in this article are designed to accomplish the following:

1. Provide an understanding of the basic principles and policies in the organization of the Department of Defense and in the planning, control, and administration of the Naval Establishment.
2. Provide a knowledge essential to the efficient operation and management of dental activities in the Navy and Marine Corps.
3. Provide promotion and/or retirement points for Reserve dental officers who are not on active duty.

The exclusion of information on dental professional subjects from this article in no way detracts from the primary importance of dental professional training and duties. Information on this type of training for dental officers is contained in BuMed Instruction 1520.2C of 19 December 1955.

A complete list of naval officer correspondence courses may be found in the Catalog of Officer Correspondence Courses - NavPers 10800A. The following courses are considered especially valuable in preparing dental officers to meet the naval responsibilities of their present and next higher grade.

Recommended for Dental Officers in the Grade of Lieutenant, Junior Grade:

<u>Course</u>	<u>Assignments</u>	<u>Reserve Points</u>
1. Naval Orientation - NavPers 10900	11	24
2. Naval Regulations - NavPers 10740A	12	24
3. Military Justice in the Navy - NavPers 10993	12	24
4. Dental Department Administration - BuMed (available about July 1956)		

Recommended for Dental Officers in the Grade of Lieutenant :

	<u>Course</u>	<u>Assignments</u>	<u>Reserve Points</u>
1.	Navy Regulations - NavPers 10740A	12	24
2.	Leadership - NavPers 10903	5	10
3.	Military Justice in the Navy - NavPers 10993	12	24
4.	Dental Department Administration - BuMed (available about July 1956)		

Recommended for Dental Officers in the Grade of Lieutenant Commander :

	<u>Course</u>	<u>Assignments</u>	<u>Reserve Points</u>
1.	Security of Classified Matter - NavPers 10975A	3	6
2.	Education and Training Part I - NavPers 10965	7	14
3.	Education and Training Part II - NavPers 10966	5	10
4.	Military Justice in the Navy - NavPers 10993	12	24
5.	Dental Department Administra- tion - BuMed (available about July 1956)		
6.	U.S. Naval Dental Clinic Adminis- tration - BuMed (available about July 1958)		

Recommended for Dental Officers in the Grades of Commander and Captain:

	<u>Course</u>	<u>Assignments</u>	<u>Reserve Points</u>
1.	Organization for National Security - NavPers 10721	5	10
2.	Personnel Administration - Nav Pers 10968	6	12
3.	Public Information - NavPers 10720	6	12
4.	Military Justice in the Navy - NavPers 10993	12	24
5.	Logistics - NavPers 10902	6	12
6.	U.S. Naval Dental Clinic Administra- tion - BuMed (available about July 1958)		
7.	Operational Planning and Staff Organization - Naval War College	4	24

Requests for enrollment in correspondence courses with NavPers numbers should be on NavPers Form 992 to the U.S. Naval Correspondence Center, Building RF, U.S. Naval Base, Brooklyn, N. Y. Requests for enrollment in BuMed courses should be on NavPers Form 992 to the Commanding Officer, U.S. Naval Dental School, NNMC, Bethesda, Md. Requests for enrollment in a Naval War College course should be by official letter to President, Naval War College, Newport, R.I. All Naval officer correspondence courses are designed and intended for individual home study.

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Interesting Films Available at District
and Fleet Film Libraries

Dental Films:

<p>Equilibration of Occlusion Sound, color, 16mm Running time 20 minutes MN - 7340</p>	<p>Periodontia Color, sound, 16mm Running time 18 minutes MN - 5370</p>
<p>Aseptic Procedure in Oral Surgery Sound, color, 16mm Running time 18 minutes MN - 7830</p>	<p>Operative Dentistry - Preparation of Cavity Color, sound, 16mm Running time 10 minutes MN - 5369B</p>
<p>Partial Dentures, Biomechanics Sound, color, 16mm Running time 16 minutes MN - 6721</p>	<p>Operative Dentistry - Matrix Color, sound, 16mm Running time 6 minutes MN - 5369C</p>
<p>Complete Dentures, Alginate Impressions Sound, color, 16mm Running time 18 minutes MN - 6720</p>	<p>Operative Dentistry - Amalgam Restoration Color, sound, 16mm Running time 12 minutes MN - 5369D</p>
<p>Complicated Exodontia, Introduction Sound, color, 16mm Running time 19 minutes MN - 6722</p>	<p>Emergency Dental Treatment Color, sound, 16mm Running time 20 minutes MN - 6723</p>

Jacket Crown Construction

Color, sound 16mm

Running time 33 minutes

MN - 5371

First Aid Films

Sucking Wounds of the Chest

Color, sound, 16mm

Running time 14 minutes

MN - 7477

Cricothyroidotomy

Black and White, sound, 16mm

Running time 11 minutes

MN - 7469

Penetrating Wounds of the Abdomen

Color, sound, 16mm

Running time 14 minutes

MN - 7470

Taking Blood Pressure

Black and White, sound, 16mm

Running time 7 minutes

MN - 1511g

Use of Whole Blood, Plasma, and Serum Albumin

Color, sound, 16mm

Running time 15 minutes

MN - 7335

Artificial Respiration: The Back-pressure - Armlift Method

Black and White, sound, 16mm

Running time 19 minutes

MN - 7484

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MEDICAL RESERVE SECTION

Available Appointments in Medical Service Corps, USNR

The Recruiting Service has recently been authorized to recruit from civilian sources qualified applicants to fill vacancies in the Supply and Administration Sections, Medical Service Corps, U.S. Naval Reserve.

The qualifications for appointment are:

1. Must be a graduate of an accredited college or university with a baccalaureate degree and have completed an advanced course of instruction at one of the approved schools listed below, earning a master's degree in Hospital Administration; or

2. Members of the Hospital Corps of the Naval Reserve not on active duty, whose permanent status is chief warrant officer, warrant officer,

chief hospital corpsman, chief dental technician, hospital corpsman first class, or dental technician first class, are eligible to apply provided they meet the following requirements:

a. Must have successfully completed four semesters (two years) toward a degree in an accredited college or university, or have satisfactorily completed the USAFI Educational Qualification Test 2CX, prior to 1 January 1954, or be a high school graduate, or have the service accepted equivalent as set forth in BuPers Instruction 1560.1, and have a GCT or ARI score of at least 60. Results of tests given must be available in the applicant's record in the absence of the formal educational requirement.

b. Must be a petty officer first class or higher in the Hospital Corps of the Naval Reserve and have held such status for at least one year prior to date of application.

c. Must be attached to or associated with a pay or non-pay unit of the Naval Reserve.

The schools approved under this plan from which applicants may be accepted follow:

University of California, School of Public Health	Berkeley, Calif.
University of Chicago, School of Business	Chicago, Ill.
Columbia University, School of Public Health	New York, N. Y.
State University of Iowa, Graduate College	Iowa City, Iowa
John Hopkins University, School of Hygiene and Public Health	Baltimore, Md.
University of Minnesota, School of Public Health	Minneapolis, Minn.
Northwestern University, School of Commerce	Chicago, Ill.
University of Pittsburgh, Graduate School of Public Health	Pittsburgh, Pa.
St. Louis University, Graduate School	St. Louis, Mo.
Washington University, School of Medicine, Department of Hospital Administration	St. Louis, Mo.
Yale University, School of Medicine, Department of Public Health	New Haven, Conn.
University of Toronto, School of Hygiene	Toronto, Canada

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Medico-Dental Symposium for the Armed Forces First Naval District

A three-day medical and dental symposium for members of the Armed Forces is scheduled to convene on 21 March 1956, at the U.S. Naval Hospital, Chelsea, Mass. The theme topic will be "Developments in Military Medicine and Dentistry, with Special Emphasis on Atomic Warfare, Special Weapons, and Isotopes."

The awarding of retirement point credits to Reserve officers in good standing who attend has been authorized. Registration at activities attended is required daily.

The wearing of the uniform is optional.

Programs and additional information concerning this symposium may be obtained by writing to: District Medical Officer, First Naval District Headquarters, 495 Summer St., Boston 10, Mass.

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X-Ray Physics and Techniques -
New Correspondence Course

This new correspondence course (NavPers 10702) is now ready for distribution to eligible Regular and Reserve officer and enlisted Armed Forces Medical Department personnel.

The development of x-ray machines in recent years has been characterized by great improvement as to protection from electrical hazards, increased capacity and numerous automatic adjustments. The textbook, "Fundamentals of X-Ray Physics and Technique" provides general information on the theory of x-rays and electricity, specific information on the operation of many types of x-ray machines, and a description of the practical applications of radiographic technique to various medical problems. Completion of this course will provide physicians as well as x-ray technicians and watch standing personnel with well grounded information in the fundamental principles of x-ray physics and technique along with biological hazards involved. Medical Department officers should encourage interested Hospital Corps personnel, watch standing personnel, and particularly those personnel desirous of, and recommended for, a course of instruction in x-ray technique, to enroll in this correspondence course.

Consisting of four objective question-type assignments, this course is evaluated at 12 promotion and nondisability retirement points. Applications for this course should be submitted on Form NavPers 992 and forwarded via appropriate official channels to the Commanding Officer, U S. Naval Medical School, National Naval Medical Center, Bethesda, Md.

Naval Reserve officer and enlisted personnel who have completed the Special Clinical Services (general) correspondence course will not receive additional credit for completion of this course. (Naval Medical School, NNMC)

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Please forward requests for Change of Address for the News Letter to: Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.



PREVENTIVE MEDICINE SECTION

Poliomyelitis Vaccine

(This is the second in a series of articles designed to apprise Medical Department personnel of the current status of distribution of poliomyelitis vaccine to be used for dependents of Navy and Marine Corps personnel.)

The general plan for distribution of poliomyelitis vaccine to Navy and Marine Corps activities within the continental United States and the requirements which had been submitted from the Naval Districts and River Commands were outlined in the first article on this subject in the Preventive Medicine Section of the February 3, 1956 issue of the News Letter. The earlier article also reported details of the distribution of the 21,780 cc. of vaccine available in the Navy supply system as of 10 January 1956.

During the month of January, additional vaccine in the amount of 30,945 cc. was allocated to the Navy and was received in the supply depots. This was distributed to field activities during the week of January 30 to February 4, 1956. No further allocations have been made as of this writing. The quantities distributed to each Naval District are given in Table No. I.

Poliomyelitis vaccine shipped to date will cover about 29% of the total requirements for the first dose, or 14.5% of the requirements for a two-dose program, as submitted on 6 January 1956 by the Commandants. It has become evident, however, from the changes in requirements which have already reached the Bureau that the picture is somewhat more optimistic than these figures indicate. It is likely that, when new requirements are submitted on 30 March 1956, in accordance with BuMed Instruction 6230.8, Sup I, the over all requirements will be considerably below those submitted on 6 January because of the inclusion of many dependent children in community health department programs. Consequently, in the light of present production estimates, it seems quite probable that all Navy and Marine Corps dependent children between the ages of 6 months and 14 years, for whom vaccination is desired, will have received two doses of the vaccine before 1 June 1956. It is still too early to estimate quantities of vaccine that may be available for older children or for third doses in those immunized prior to 1 January 1956.

Table No. I

District	Two Dose Requirement in cc.	Cubic Centimeters Shipped Prior Feb. 6, 1956		
		First	Second	Total
1	31,642	1,890	2,700	4,590
3	12,400	738	1,080	1,818
4	12,612	765	1,305	2,070
SRNC	2,072	153	216	369
PRNC	23,266	1,404	1,998	3,402
5	103,300	6,201	8,856	15,057
6	47,292	2,835	3,978	6,813
8	15,684	936	918	1,854
9	20,134	1,215	1,827	3,042
11	64,342	3,852	5,499	9,351
12	18,188	1,089	1,569	2,658
13	11,336	702	999	1,701
TOTAL	362,268	21,780	30,945	52,725

A total of 420,000 cc. of vaccine had been received in the Department of Defense prior to 1 January 1956, including the gift of 72,900 cc. of vaccine from the National Foundation for Infantile Paralysis for immunization of children in the first and second grades of school overseas. The Navy received approximately one-third of this vaccine which was used to complete a two-dose program in children aged 6 months through 15 years and pregnant women overseas, because these dependents had no source of immunization other than that provided through the Armed Forces.

Paragraph 3f of BuMed Instruction 6230.8 of 16 September 1955, points out that an occasional case of poliomyelitis is to be expected following vaccination—particularly in periods of peak incidence. Should this occur,

the Bureau of Medicine and Surgery should be consulted by telephone or dispatch before administration of the vaccine is stopped on a wide scale. The Bureau can obtain information rapidly on any lot of vaccine that may come under suspicion relative to safety of administration.

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The 1956 Industrial Health Conference

The 1956 Industrial Health Conference will be held at Convention Hall, Philadelphia, Pa., from 21 April through 28 April 1956. This conference is jointly sponsored by the American Industrial Hygiene Association, American Governmental Industrial Hygienists, the American Association of Industrial Nurses, the American Association of Industrial Dentists and the Industrial Medical Association. It is one of the most important educational meetings of the year for personnel employed in the industrial health program of the Navy.

This conference affords unsurpassed opportunity for the presentation and discussion of new problems in the field of industrial health which have arisen incident to rapid technological progress. Recognized leaders in the field of industrial health will be present representing major private industries in the United States and Canada. There will be discussions of mechanisms believed to be most effective in lowering sick day absenteeism, in the prevention of lost time accidents, and in improving employee morale, all of which are applicable in lowering the over all cost of industrial production and in maintaining a condition of readiness in the Navy. In order to have an adequate and progressive industrial health program in the Navy, it is considered highly desirable that naval and civilian personnel concerned with the industrial health program attend this conference. Such participation is particularly pertinent at this time when an effort is still being made to integrate more civilian physicians into the Navy's industrial health programs and to maintain and improve our present low rates of industrial sickness and accidents.

It is highly recommended that industrial medical officers, industrial hygienists, and industrial nurses attend this important conference to the extent that their respective activities can spare them and that per diem funds can be made available. Since this conference is sponsored by non-federal organizations, orders for attendance must be processed in accordance with SecNav Instruction 4651.8A. For this reason, applications for orders to attend should be processed at an early date.

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Postgraduate Training in Preventive Medicine

There is a critical need for medical officers trained in the basic disciplines of public health: epidemiology, biostatistics, microbiology, sanitary engineering, and public health administration.

Medical officers of the Regular Navy, lieutenant commander or below, who have had sea or foreign duty and who desire to specialize in preventive medicine, are invited to make immediate application for one academic year of postgraduate training beginning in August, September, or early October 1956. The choice of school can be made for this training which may be taken at any one of the accredited schools of public health in the United States which offer a course leading to the degree of master of public health or an equivalent certificate. Applications should be forwarded as soon as possible to the Chief of the Bureau of Medicine and Surgery, via the commanding officer with a reference to this article, and should be accompanied by an appropriate obligated service agreement in accordance with BuMed Instruction 1520.7 of 4 August 1954.

Several schools of public health also afford opportunity for specialized study in industrial health leading to the degree of master of industrial health.

Among the interesting assignments available to young medical officers who successfully complete the course are: preventive medicine units ashore, both in the continental United States and in overseas areas, medical research units, preventive medicine duties at naval training stations, the Bureau of Medicine and Surgery, and various naval schools as instructors in such subjects as epidemiology, environmental health, preventive medicine, and related laboratory sciences. For those who major in industrial health, there are opportunities for assignment as industrial medical officers in the various naval industrial activities. The basic courses are also of value to any medical officer interested in clinical research, aviation medicine, submarine medicine, preventive psychiatry, and various other facets of Navy medicine.

The broad knowledge and experience to be gained in a successful career in preventive medicine, whether it be in public health or occupational health in the Navy, provides outstanding preparation for the responsibilities to be assumed with advancement in rank through the senior grades. It also provides the background necessary for appointment to many occupational health positions, public health positions, and teaching posts in civilian medicine when the Navy career is completed. Successful completion of this training meets part of the academic requirement for the American Board of Preventive Medicine and for certification by examination in public health, aviation medicine, or occupational medicine.

At least four or five more applicants are urgently needed this year to fill existing vacancies in the preventive medicine service of the Navy. Candidates desiring more information on postgraduate training in preventive

medicine are invited to direct their questions to the Bureau of Medicine and Surgery.

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Postgraduate Course in Venereal Disease

The 25th Venereal Disease Postgraduate Course, sponsored by the University of Washington School of Medicine and the Department of Health Education, and Welfare, Public Health Service, will be given at Seattle, Wash., 19 March through 23 March 1956. The course is designed to acquaint physicians with the latest developments in the diagnosis, treatment, and management of venereal diseases. There will be no tuition charge for the course and physicians interested in attending the course should send applications to the University of Washington School of Medicine, Division of Postgraduate Medical Training, Harbor View Hospital Annex, 325 Ninth Avenue, Seattle 4, Washington.

Naval medical officers interested in attending should apply to the School as indicated above and should request TAD orders from their local commanders. Attendance at this course has the professional endorsement of the Bureau of Medicine and Surgery.

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Errata in Flip Charts for Food-Service Training

Flip Charts for training food-service personnel (NavPers 230074) have been prepared for use in the Navy food-service training program. There are ninety-two 32" x 20" colored charts in the set.

Instructions in sanitary precautions for food-service personnel has been republished as NavPers 91921A. The pass-out sheets—16 tear sheets from NavMed P-1333—have also been republished as NavPers 91921A-1. Because the three publications were designed for joint use in the Food-Service Course, it was considered advisable to hold the Flip Charts for distribution with NavPers 91921A and 91921A-1 upon publication of the latter two. These publications are now in the process of being distributed.

Before the Flip Charts are utilized for training, the following errata should be corrected:

Series B

- B-2 Delete "L" in "BACTERIAL" by erasing or covering with heavy white paper or cardboard.

- B-6 Insert a dash after "TISSUE ONLY" to clarify the meaning.
- B-8 Delete the letters "CLEANINESS" at the bottom of the chart by either erasing or covering them with white cardboard.

Series C

- C-12 Correct spelling of "DYSENTERY" by erasing the letters "RY" and substituting "ERY" in black ink.

Series E

- E-2 Change "160° F. " to "161° F. " by covering the "0" with white cardboard on which "1" has been drawn with green crayon.
- E-11 Delete "MAXIMUM" and shade with red pencil.

Series F

- F-2 Correct spelling of "HARMFUL" by erasing the superfluous "L" and shading with red pencil.
- F-7 Change water temperatures from 120° and 140°F. to 140° and 160° F respectively by covering "2" and "4" with white cardboard squares and substituting "4" and "6" with green crayon.

Series H

- H-15 Delete quotes in front of "EMIT" by erasing or covering with white cardboard. Insert quotes before "INKY" with red pencil.

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Immersion Foot

(The clinical aspects and prevention of frostbite were discussed in the Preventive Medicine Section of the Medical News Letter of December 9, 1955)

Immersion foot and immersion hand designate a nonfreezing form of local cold injury resulting from intermittent or continuous exposure of the extremities to sea water at temperatures ranging from just above freezing in the high latitudes to relatively mild cold at lower latitudes. The severity of the injury is determined by the degree of cold and the duration of the exposure.

The injury is characterized by temporary edema and hyperemia of the affected part accompanied by more lasting disturbances in function of autonomic, sensory, and motor nerve fibers with muscular weakness and atrophy in severe cases. Skin necrosis and vascular occlusion are less common than in frostbite. "Immersion foot" is a term coined by a surgeon of the British Navy in 1940. The condition is similar in its pathogenesis and clinical features to trench foot which took a large toll among ground troops in World War I.

The essential condition for the development of immersion injury is prolonged exposure of poorly insulated extremities to cold. Wetness is important as a contributing factor because it destroys the insulating properties of hand and foot gear and promotes loss of tissue heat by conduction. Other contributing factors of major importance are those which diminish blood flow to the extremities. These include the dependent position, immobility, direct and reflex vasoconstrictor effects of cold, increase in blood viscosity, and mechanical obstruction to arterial inflow and venous return by tight clothing and foot gear. Periodic vasodilatation in extremities exposed to cold (the Lewis phenomenon) is a protective mechanism which is depressed or abolished with the advent of general body cooling. The limb is sacrificed, so to speak, when life is endangered by cold.

One important effect of cold and the accompanying ischemia is a reduced oxygen tension in the tissues of the extremity. Not only does less blood reach the tissue, but oxyhemoglobin dissociates less readily in the cold. The oxygen supply to peripheral tissues is reduced more by cold than are the metabolic needs, and a relative anoxia in the chilled tissue is the result. Nerve and muscle which are susceptible to oxygen lack are the tissues which suffer most in immersion foot. Possible causal factors in addition to anoxia are the accumulation of normal metabolites and, perhaps, abnormal intermediate products as well as the direct effects of cold on cellular functions.

Three stages are observed in the clinical course of immersion foot. In the prehyperemic stage, which is seen immediately after the victim is rescued, the extremity is cold; it is either blanched or mottled and cyanotic in appearance with absent or sluggish flow in the skin vessels. The dorsalis pedis pulse is not palpable; mild to moderate edema is usually present. Superficial and deep sensation is absent, anesthesia being of the glove or stocking type.

The second or hyperemic stage begins as body and tissue heat is restored. The affected part becomes red and hot with bounding arterial pulsations. Edema increases and may extend well beyond the original area of anesthesia. In severe cases, friability of the skin with blisters or patchy areas of necrosis is seen. Throbbing pain with burning and tingling sensations are the predominant symptoms of this stage. Sweating is absent in the affected area. Critical modalities of sensation remain lost. Motor

weakness or paralysis is common except in mild cases. The hyperemic stage reaches a peak in several hours, but the signs and symptoms of autonomic, sensory, and motor paralysis may persist for days or weeks.

In the posthyperemic stage, hyperemia and edema subside. Restoration of autonomic activity is manifested by hyperhidrosis and vasomotor hyperactivity. Anesthesia gives way to hypesthesia, hyperalgesia, and hypersensitivity to cold. Stabbing pain may be a distressing symptom. Muscular weakness with atrophy of the small muscles is frequent. This picture may gradually revert to normal in a period of months, but in severe cases these disabling symptoms, which resemble causalgia or Raynaud's syndrome, may last for years.

Treatment of immersion foot in the prehyperemic stage consists of absolute bed rest, avoidance of trauma, and prevention of infection. The victim must not be allowed to walk. Unlike frostbite, rapid local rewarming is to be avoided. The extremity lying horizontal beneath a cradle is allowed to warm gradually in air at room temperature (70 to 75° F.). General hypothermia, however, must be promptly and vigorously corrected by external warmth applied to the body, but excluding the injured extremity. In later treatment, emphasis is on control of pain, correction of nutritional deficiencies, and continued avoidance of trauma and infection. Except for debriding blisters, surgery is indicated only when gangrene complicates the picture. In the posthyperemic stage, activity is gradually resumed. Exposure to cold and to excessive heat should be avoided. Autonomic blocking or sympathectomy may have a place in late treatment in order to control severe hyperhidrosis and vasomotor disturbances.

Open rafts and life floats in use during World War II saved survivors of naval combat from drowning. Unfortunately, this type of survival equipment offered little protection against exposure to the cold sea and chilling winds. A tragically large number of survivors died from general hypothermia in the hours or days which elapsed before rescue arrived. Those who survived the rigors of cold and dehydration frequently sustained disabling immersion injuries of the feet and hands. A major step in the prevention of this serious loss of valuable lives and limbs has been the adoption of inflatable covered life boats as standard survival equipment by both the British and the United States Navy. Survivors can live for many days in relative comfort within such craft floating in cold areas of the sea. Nevertheless, mild to moderate degrees of immersion foot can occur under these survival conditions as a result of prolonged contact of the feet with the cold damp deck of the life boat. Supporting the feet off the deck with life jackets, keeping the feet dry, and applying massage and body warmth are measures which will minimize this danger. Immersion hypothermia and its treatment will be discussed in a later issue. (David Minard, CDR MC USN, PrevMed Div, BuMed)

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Loaded Projectiles Used for Display and Ornamental
Purposes at a Naval Hospital

A request was received by a Naval District Explosives Ordnance Disposal Officer to inspect three 5-inch projectiles which were being used for display and decorative purposes at a naval hospital. Investigation revealed some startling facts. Although the projectiles were found to be unfuzed, they proved to be loaded and lethal. Subsequently, all similar displays on the grounds of this hospital were inspected, and twenty-three additional 8-inch similarly loaded projectiles were found. All twenty-six projectiles were removed and disposed of in a safe location.

In view of the startling revelations at this naval hospital, it is suggested that all naval activities undertake inspections to insure that every explosive projectile on display is inert and safe.

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The printing of this publication has been approved by the Director of the Bureau of the Budget, 16 May 1955.

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